PRESS RELEASE

More effective treatment for cystic fibrosis patients on its way

For immediate release

*Stockholm, 22 May 2017* — We are a step closer to a better treatment for patients with cystic fibrosis. New research presented today at the International Pharmaceutical Federation’s Pharmaceutical Sciences World Congress describes how scientists have developed a formulation that increases the delivery of a novel “antivirulence” agent to the lungs.

About 80% of cystic fibrosis patients suffer from chronic lung infections caused by *Pseudomonas aeruginosa*.1 Persistent lung infections such as pneumonia and bronchitis are central in the development of chronic lung disease in these patients and significantly increase morbidity. *P.* *aeruginosa* infection is associated with rapid decline in lung function and increased mortality. This is commonly treated with antibiotics such as tobramycin, with variable success rates. *P. aeruginosa* usually grows in biofilms, where the cells stick together in a self-produced matrix that makes them resistant to antibiotics. An international consortium of scientists has been working on a new type of compound called quorum sensing inhibitors (QSIs), which can interrupt communication pathways between bacterial cells, resulting in reduced virulence and decreased tolerance to antibiotics.

“We are now at a stage where we have a handful of promising candidate compounds in this class, from which we could identify a lead compound. But, in the interest of efficiency, we have simultaneously been working on how the eventual lead compound could best be delivered locally to the lung. One of the problems is that our prototype QSI compound was poorly soluble in water, yet we wanted to be able to deliver it to the lungs in a solution in combination with tobramycin,” says Dr Tomás Sou, a researcher at the Department of Pharmacy, Uppsala University, Sweden.

The research presented today shows that using certain solubilising excipients allows the production of a multidrug formulation that can deliver the desired amount of the QSI and tobramycin to the lungs of rats with *P. aeruginosa* infection. This formulation was effective in sensitising the bacteria to the antibiotic and showed a reduction in colony forming units of the bacteria when these two compounds were administered together.

“More than 70,000 people suffer from cystic fibrosis worldwide. This research could ultimately improve the quality of life for these patients and, potentially, others,” Dr Sou says. “*P. aeruginosa* infections are also a concern in hospitals, particularly for patients who have been in hospital for more than a week. These infections can be life-threatening. Our work could eventually also have relevance for these people.”

The consortium, SENBIOTAR, has brought together experts in different fields of science from Sweden, the UK, Canada and Denmark. “It is through this multidisciplinary team effort that we have been able to make such good progress within a short time-frame in this field,” Dr Sou says.

**Notes for editors**

Cystic fibrosis is a progressive, genetic disease. A defective gene causes a thick build-up of mucus in the lungs and other organs. In the lungs, the mucus blocks airways and traps bacteria, leading to infections, extensive lung damage and, eventually, respiratory failure.

Dr Tomás Sou is available for interview on request.

Images showing the effect of the formulation on a bacterial microcolony are available for publication.

SENBIOTAR is made up of drug delivery and formulation experts at Uppsala University, Sweden, medicinal chemists and molecular biologists from the University of Nottingham, UK, and the University of Copenhagen, Denmark, and experts in chronic *P. aeruginosa* lung infection models at Laval University, Canada.

***About FIP & PSWC 2017:*** The International Pharmaceutical Federation (FIP) is the global federation of national associations of pharmacists and pharmaceutical scientists, and is in official relations with the World Health Organization. Through its 139 member organisations, it represents over three million practitioners and scientists around the world. FIP’s 6th Pharmaceutical Sciences World Congress is being held in Stockholm, Sweden, from 21 to 24 May. Over a thousand pharmaceutical scientists and pharmacists from 73 countries have gathered to talk about drug discovery and development under the theme “Future medicines for one world”, which focuses on systems biology. [www.fip.org](http://www.fip.org)

*Reference*

*1. Crull M, Ramos K, Caldwell E et al. Change in Pseudomonas aeruginosa prevalence in cystic fibrosis adults over time. BMC Pulmonary Medicine 2016;16:176.*

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